

Module Overview

This module identifies and explains the basics of system layout, including design criteria, types of hazards, and coverage area for sprinklers.

Prerequisites

Prior to training with this module, it is recommended that the trainee shall have successfully completed *Core Curriculum; Sprinkler Fitting Level One; Sprinkler Fitting Level Two; and Sprinkler Fitting Level Three.*

Objectives

Upon completion of this module, the trainee will be able to do the following:

1. Explain system design, pipe sizing, and hydraulic calculations.
2. Identify and describe the four different system configurations.
3. Explain the differences between pipe schedule design and hydraulic design.
4. Identify and describe extra hazard, ordinary hazard, light hazard, and residential occupancies.
5. Identify and explain flow characteristics.
6. Explain pressure loss considerations.
7. Calculate branch line hydraulics.
8. Perform steps to calculate a branch line.
9. Calculate main piping hydraulics.
10. Explain how pipe schedule relates to hazard classifications.

Performance Tasks

Under the supervision of the instructor, the trainee should be able to do the following:

1. Determine the design criteria of a given room.
2. Calculate system pipe sizing using the pipe schedule design method.
3. Calculate system pipe sizing using the area/density design method.
4. Calculate pipe sizing based on flow characteristics.
5. Calculate branch line hydraulics for a given system.
6. Hydraulically calculate a main for a given system.
7. Hydraulically calculate the pressure loss/gain per foot of elevation change.

Materials and Equipment

Multimedia projector and screen
Sprinkler Fitting Level Four PowerPoint®
Presentation Slides (ISBN 978-0-13-272927-7)
Computer
Whiteboard/chalkboard
Markers/chalk
Pencils and scratch paper
Appropriate personal protective equipment
List of sample occupancies
Basic trainee tools
Ruler

Equivalent Schedule 40 steel pipe length chart
Sample system drawing
NFPA 13
NFPA 13R
NFPA 13D
Various lengths and types of pipe
Valves and fittings
Quick Quiz*
Module Examinations**
Performance Profile Sheets**

* Located at the back of this module.

** Single-module AIG purchases include the printed exam and performance task sheet. If you have purchased the perfect-bound version of this title, download these materials from the IRC using your access code.

Safety Considerations

Ensure that the trainees are equipped with appropriate personal protective equipment and know how to use it properly. Make sure all trainees are briefed on appropriate safety procedures. This module may require that the trainees visit job sites. Ensure that trainees are briefed on site safety policies prior to any site visits.

Additional Resources

This module presents thorough resources for task training. The following resource material is suggested for further study.

NFPA 13, Latest Edition. Quincy, MA: National Fire Protection Association.

NFPA 13D, Latest Edition. Quincy, MA: National Fire Protection Association.

NFPA 13R, Latest Edition. Quincy, MA: National Fire Protection Association.

Teaching Time For This Module

An outline for use in developing your lesson plan is presented below. Note that each Roman numeral in the outline equates to one session of instruction. Each session has a suggested time period of 2½ hours. This includes 10 minutes at the beginning of each session for administrative tasks and one 10-minute break during the session. Approximately 45 hours are suggested to cover *System Layout*. You will need to adjust the time required for hands-on activity and testing based on your class size and resources. Because laboratories often correspond to Performance Tasks, the proficiency of the trainees may be noted during these exercises for Performance Testing purposes.

| Topic | Planned Time |
|---|--------------|
| Sessions I and II. Introduction; System Design | |
| A. Introduction | _____ |
| B. Types of Systems | _____ |
| C. System Configurations | _____ |
| D. Pipe Schedule Design vs. Hydraulic Design | _____ |
| Sessions III through VII. Hydraulic Design and Pipe Schedule Methods | |
| A. Determining Design Criteria | _____ |
| B. Laboratory Give the trainees a list of sample occupancies and have them determine the design criteria of a given room. This laboratory corresponds to Performance Task 1. | _____ |
| C. Hydraulic Design Methods | _____ |
| D. Area/Density Method | _____ |
| E. Laboratory Have trainees calculate system pipe sizing using the area/density design method. This laboratory corresponds to Performance Task 3. | _____ |
| F. Room Design Method | _____ |
| G. Special Design Approaches | _____ |
| H. Pipe Schedule Method | _____ |
| I. Laboratory Have trainees calculate system pipe sizing using the pipe schedule design method. This laboratory corresponds to Performance Task 2. | _____ |

Sessions VIII through XI. Flow Characteristics and Pressure Loss

A. Flow Characteristics _____

B. Pressure Loss _____

C. Elevation Loss _____

D. Laboratory _____

Have trainees hydraulically calculate the pressure loss/gain per foot of elevation change for a given system. This laboratory corresponds to Performance Task 7.

E. Basic Friction Loss _____

F. The C-Factor _____

G. Calculating Friction Loss _____

H. Equivalent Pipe Lengths _____

I. Laboratory _____

Have trainees calculate pipe sizing based on flow characteristics. This laboratory corresponds to Performance Task 4.

Sessions XII through XVI. Hydraulic Branch Line Calculations

A. Basic Rules _____

B. Calculation Steps _____

C. Laboratory _____

Have trainees calculate branch line hydraulics for a given system. This laboratory corresponds to Performance Task 5.

D. Performing Hydraulics – Main Piping _____

E. Laboratory _____

Have trainees hydraulically calculate a main for a given system. This laboratory corresponds to Performance Task 6.

Sessions XVII and XVIII. Review and Testing

A. Review _____

B. Module Examination _____

1. Trainees must score 70% or higher to receive recognition from NCCER.
2. Record the testing results on Training Report Form 200, and submit the results to the Training Program Sponsor.

C. Performance Testing _____

1. Trainees must perform each task to the satisfaction of the instructor to receive recognition from NCCER. If applicable, proficiency noted during laboratory exercises can be used to satisfy the Performance Testing requirements.
2. Record the testing results on Training Report Form 200, and submit the results to the Training Program Sponsor.

Module Overview

This module identifies and explains the inspection, testing, and maintenance of wet pipe systems, dry pipe systems, preaction/deluge systems, and special systems.

Prerequisites

Prior to training with this module, it is recommended that the trainee shall have successfully completed *Core Curriculum; Sprinkler Fitting Level One; Sprinkler Fitting Level Two; Sprinkler Fitting Level Three; and Sprinkler Fitting Level Four*, Module 18401-08.

Objectives

Upon completion of this module, the trainee will be able to do the following:

1. Describe the reasons for unsatisfactory sprinkler system performance.
2. Explain initial system testing and inspections for aboveground, underground, and overhead pipe.
3. Describe the flushing process for underground piping/mains.
4. Describe the importance of periodic inspections of sprinkler systems.
5. Explain the report of inspection and how it must relate to the chapters included in *NFPA 25*.
6. Explain the difference between warranty repair and owner repair.
7. Explain the general preparations for system repair.
8. Describe the specific repair considerations for deluge and preaction systems.
9. Describe the general preparation procedures for inspection, maintenance, and repair of special systems.
10. Explain the required procedures to test all types of valves.
11. Perform a main drain test.
12. Complete inspection and testing of water-based and wet standpipe systems and complete the required documentation.

Performance Tasks

Under the supervision of the instructor, the trainee should be able to do the following:

1. Inspect and test water-based fire protection systems.
2. Complete the Report of Inspection, Testing and Maintenance of Water Based Fire Protection Systems.
3. Inspect and test wet standpipe systems.
4. Complete the Report of Inspection, Testing and Maintenance of Standpipe Systems.
5. Conduct a main drain test.

Materials and Equipment

Multimedia projector and screen
Sprinkler Fitting Level Four PowerPoint®
Presentation Slides (ISBN 978-0-13-272927-7)
Computer
Whiteboard/chalkboard
Markers/chalk
Pencils and scratch paper
Appropriate personal protective equipment
Basic trainee tools
Air compressor
Test equipment
Sample valve(s)
Piping test certificates
Sample inspection checklist
Sample site-specific inspection forms
Report of Inspection, Testing and Maintenance of
Water-Based Fire Protection Systems
Report of Inspection and Testing of Wet Stand-
pipe Systems
*NFPA 13 Contractor's Material and Test Certificate
for Aboveground Piping*
*NFPA 13 Contractor's Material and Test Certificate
for Underground Piping*

Report of Inspection, Testing and Maintenance of
Water-Based Fire Protection Systems
Report of Inspection, Testing and Maintenance of
Wet Pipe Fire Sprinkler Systems
Report of Inspection, Testing and Maintenance of
Standpipe Systems
Report of Inspection, Testing and Maintenance of
Private Fire Service Mains
Report of Inspection, Testing and Maintenance of
Fire Pump Assemblies
Report of Inspection, Testing and Maintenance of
Water Storage Tanks
NFPA 24, Private Fire Service Mains
*NFPA 25, Standard for Inspection, Testing, and
Maintenance of Water-Based Fire Protection
Systems*
Access to a water-based fire protection system
Access to a wet standpipe system
Access to a main drain
Quick Quiz*
Module Examinations**
Performance Profile Sheets**

* Located at the back of this module.

** Single-module AIG purchases include the printed exam and performance task sheet. If you have purchased the perfect-bound version of this title, download these materials from the IRC using your access code.

Safety Considerations

Ensure that the trainees are equipped with appropriate personal protective equipment and know how to use it properly. This module requires trainees to inspect and test water-based fire protection systems. Make sure all trainees are briefed on appropriate safety procedures. This module may require that the trainees visit job sites. Ensure that trainees are briefed on site safety policies prior to any site visits.

Additional Resources

This module presents thorough resources for task training. The following resource material is suggested for further study.

NFPA 13, Standard for the Installation of Sprinkler Systems, Latest Edition. Quincy, MA: National Fire Protection Association.

NFPA 25, Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, Latest Edition. Quincy, MA: National Fire Protection Association.

NFPA 70, National Electrical Code, Latest Edition. Quincy, MA: National Fire Protection Association.

NFPA 72, National Fire Alarm Code, Latest Edition. Quincy, MA: National Fire Protection Association.

Teaching Time For This Module

An outline for use in developing your lesson plan is presented below. Note that each Roman numeral in the outline equates to one session of instruction. Each session has a suggested time period of 2½ hours. This includes 10 minutes at the beginning of each session for administrative tasks and one 10-minute break during the session. Approximately 17½ hours are suggested to cover *Inspection, Testing, and Maintenance*. You will need to adjust the time required for hands-on activity and testing based on your class size and resources. Because laboratories often correspond to Performance Tasks, the proficiency of the trainees may be noted during these exercises for Performance Testing purposes.

| Topic | Planned Time |
|---|--------------|
| Session I. Introduction; Initial System Testing and Inspections | |
| A. Introduction | _____ |
| B. Initial System Testing and Inspections | _____ |
| Sessions II through IV. Periodic Inspections; Report of Inspection | |
| A. Periodic Inspections | _____ |
| B. Report of Inspection | _____ |
| C. PT/Laboratory Have trainees inspect and test a water-based fire protection system and complete a sample report. This laboratory corresponds to Performance Tasks 1 and 2. | _____ |
| D. PT/Laboratory Have trainees inspect and test a wet standpipe system and complete the Report of Inspection, Testing & Maintenance of Standpipe Systems. This laboratory corresponds to Performance Tasks 3 and 4. | _____ |
| Sessions V and VI. Repair; Special Systems | |
| A. Repair | _____ |
| B. Special Systems | _____ |
| C. PT/Laboratory Have trainees conduct a main drain test. This laboratory corresponds to Performance Task 5. | _____ |
| Session VII. Review and Testing | |
| A. Review | _____ |
| B. Module Examination | _____ |
| 1. Trainees must score 70% or higher to receive recognition from NCCER. | |
| 2. Record the testing results on Training Report Form 200, and submit the results to the Training Program Sponsor. | |
| C. Performance Testing | _____ |
| 1. Trainees must perform each task to the satisfaction of the instructor to receive recognition from NCCER. If applicable, proficiency noted during laboratory exercises can be used to satisfy the Performance Testing requirements. | |
| 2. Record the testing results on Training Report Form 200, and submit the results to the Training Program Sponsor. | |

Module Overview

This module identifies and explains exposure systems, water spray systems, foam systems, carbon dioxide systems, Halon systems, auxiliary systems, and local alarm systems.

Prerequisites

Prior to training with this module, it is recommended that the trainee shall have successfully completed *Core Curriculum; Sprinkler Fitting Level One; Sprinkler Fitting Level Two; Sprinkler Fitting Level Three; and Sprinkler Fitting Level Four*, Modules 18401-08 and 18402-08.

Objectives

Upon completion of this module, the trainee will be able to do the following:

1. Describe the three methods of heat transfer.
2. Explain the basic principles of exposure protection.
3. Identify what piping and fitting materials can be used and where they must be located in an exposure system.
4. Explain where water spray systems are typically used.
5. Explain the general concepts of using foam as opposed to water as an extinguishing agent.
6. Describe the different classes of foam concentrates and foam sprinkler system configurations.
7. Explain how to measure density using a refractometer.
8. Identify the five basic automatic fire detection methods that can be used for electric release.
9. Describe the dangers when working with a carbon dioxide system.
10. Describe the different classes of fire extinguishers and what the rating designations mean.

Performance Tasks

Under the supervision of the instructor, the trainee should be able to do the following:

1. Perform a water discharge test.
2. Demonstrate the proper use of a CO₂ monitor.
3. Demonstrate how to swab a pipe interior.

Materials and Equipment

Multimedia projector and screen
Sprinkler Fitting Level Four PowerPoint®
Presentation Slides (ISBN 978-0-13-272927-7)
Computer
Whiteboard/chalkboard
Markers/chalk
Pencils and paper
Appropriate personal protective equipment
Basic trainee tools
Various joints and pipes
Joint sealant
Galvanized pipe and fittings
Access to water for discharge testing

CO₂ monitors
NFPA 13, Standard for the Installation of Sprinkler Systems
NFPA 11, Standard for Low-Expansion Foam
NFPA 12, Standard on Carbon Dioxide Extinguishing Systems
NFPA 15, Standard for Water Spray Fixed Systems for Fire Protection
NFPA 17, Standard for Dry Chemical Extinguishing Systems
NFPA Fire Protection Handbook
Montreal Protocol on Substances that Deplete the Ozone Layer

continued

Americans With Disabilities Act (ADA) Accessibility Guidelines
Quick Quiz*

Module Examinations**
Performance Profile Sheets**

* Located in the back of this module.

** Single-module AIG purchases include the printed exam and performance task sheet. If you have purchased the perfect-bound version of this title, download these materials from the IRC using your access code.

Safety Considerations

Ensure that the trainees are equipped with appropriate personal protective equipment and know how to use it properly. Make sure all trainees are briefed on appropriate safety procedures. This module may require that the trainees visit job sites. Ensure that trainees are briefed on site safety policies prior to any site visits.

Additional Resources

This module presents thorough resources for task training. The following resource material is suggested for further study.

- NFPA 10*, Latest Edition. Quincy, MA: National Fire Protection Association.
- NFPA 12*, Latest Edition. Quincy, MA: National Fire Protection Association.
- NFPA 11*, Latest Edition. Quincy, MA: National Fire Protection Association.
- NFPA 13*, Latest Edition. Quincy, MA: National Fire Protection Association.
- NFPA 13D*, Latest Edition. Quincy, MA: National Fire Protection Association.
- NFPA 15*, Latest Edition. Quincy, MA: National Fire Protection Association.
- NFPA 20*, Latest Edition. Quincy, MA: National Fire Protection Association.
- NFPA 70*, Latest Edition. Quincy, MA: National Fire Protection Association.
- NFPA 2001*, Latest Edition. Quincy, MA: National Fire Protection Association.

Teaching Time For This Module

An outline for use in developing your lesson plan is presented below. Note that each Roman numeral in the outline equates to one session of instruction. Each session has a suggested time period of 2½ hours. This includes 10 minutes at the beginning of each session for administrative tasks and one 10-minute break during the session. Approximately 42½ hours are suggested to cover *Special Extinguishing Systems*. You will need to adjust the time required for hands-on activity and testing based on your class size and resources. Because laboratories often correspond to Performance Tasks, the proficiency of the trainees may be noted during these exercises for Performance Testing purposes.

| Topic | Planned Time |
|--|--------------|
| Sessions I and II. Introduction; Exposure Systems | |
| A. Introduction | _____ |
| B. Exposure Systems | _____ |

Sessions III through VI. Water Spray Systems; Foam Systems

A. Water Spray Systems _____

B. Laboratory _____

Have trainees practice using joint sealant to make watertight joints.

C. Laboratory _____

Have trainees practice swabbing a pipe interior. This laboratory corresponds to Performance Task 3.

D. Laboratory _____

Have trainees practice performing a water discharge test. This laboratory corresponds to Performance Task 1.

E. Foam Systems _____

Sessions VII through IX. Flow Control Valves; Carbon Dioxide (CO₂) Systems

A. Flow Control Valves _____

B. Carbon Dioxide (CO₂) Systems _____

C. Laboratory _____

Have trainees practice using a CO₂ monitor. Note the proficiency of each trainee. This laboratory corresponds to Performance Task 2.

Sessions X through XIII. Halon Systems; Halon Alternatives; Dry Chemical Systems

A. Halon Systems _____

B. Halon Alternatives _____

C. Dry Chemical Systems _____

Sessions XIV and XV. Auxiliary Alarm Systems and Local Alarms

A. Auxiliary Alarm Systems and Local Alarms _____

Session XVI. Fire Extinguishers; Water Mist Suppression Systems

A. Fire Extinguishers _____

B. Water Mist Suppression Systems _____

Session XVII. Review and Testing

A. Review _____

B. Module Examination _____

1. Trainees must score 70% or higher to receive recognition from NCCER.
2. Record the testing results on Training Report Form 200, and submit the results to the Training Program Sponsor.

C. Performance Testing _____

1. Trainees must perform each task to the satisfaction of the instructor to receive recognition from NCCER. If applicable, proficiency noted during laboratory exercises can be used to satisfy the Performance Testing requirements.
2. Record the testing results on Training Report Form 200, and submit the results to the Training Program Sponsor.

Module Overview

This module describes the qualities and responsibilities of a foreman, including an explanation of documentation and tracking.

Prerequisites

Prior to training with this module, it is recommended that the trainee shall have successfully completed *Core Curriculum; Sprinkler Fitting Level One; Sprinkler Fitting Level Two; Sprinkler Fitting Level Three; and Sprinkler Fitting Level Four*, Modules 18401-08 through 18403-08.

Objectives

Upon completion of this module, the trainee will be able to do the following:

1. Explain the foreman's responsibilities to the project coordinating staff or project owner.
2. Explain the job safety responsibilities.
3. Describe job cleanliness and material organization.
4. Explain responsibilities for project close-out.
5. Describe project layout and coordination.
6. Identify and describe the scope of project and the scope letter.
7. Describe job specifications and project drawings.
8. Record changes on a shop drawing for as-builts.
9. Complete daily, weekly time, and progress reports.
10. Identify and explain materials documentation.

Performance Tasks

Under the supervision of the instructor, the trainee should be able to do the following:

1. Prepare a request for information (RFI).
2. Prepare a foreman's report of accident.
3. Compare daily, weekly time, and progress reports.
4. Record changes on a shop drawing for as-builts.

Materials and Equipment

Multimedia projector and screen
Sprinkler Fitting Level Four PowerPoint®
Presentation Slides (ISBN 978-0-13-272927-7)
Computer
Whiteboard/chalkboard
Markers/chalk
Pencils and scratch paper
Appropriate personal protective equipment
Occupational Safety and Health Act (OSHA) of 1970

Sample RFI forms
Sample foreman's report of accident forms
Sample daily, weekly time, and progress reports
Sample as-built drawings
Sample building addition drawing
Quick Quiz*
Module Examinations**
Performance Profile Sheets**

* Located at the back of this module.

** Single-module AIG purchases include the printed exam and performance task sheet. If you have purchased the perfect-bound version of this title, download these materials from the IRC using your access code.

Safety Considerations

Ensure that the trainees are equipped with appropriate personal protective equipment and know how to use it properly. This module may require that the trainees visit job sites. Ensure that trainees are briefed on site safety policies prior to any site visits.

Additional Resources

This module presents thorough resources for task training. The following resource material is suggested for further study.

- NFPA 13, Latest Edition. Quincy, MA: National Fire Protection Association.
- American Medical Association (AMA), www.ama-assn.org
- American Society for Training and Development (ASTD), www.astd.org
- Architecture, Engineering, and Construction Industry (AEC), www.aecinfo.com
- CIT Group, www.citgroup.com
- Construction Work Development Center, www.construction-work.org
- Equal Employment Opportunity Commission (EEOC), www.eeoc.gov
- Knowledge Center's Manager's Toolkit, www.knowledgecenters.versaware.com
- National Association of Women in Construction (NAWIC), www.nawic.org
- National Census of Fatal Occupational Injuries (NCFOI), <http://stats.bls.gov/news.release/cfoi.toc.htm>
- National Center for Construction Education and Research, www.nccer.org
- National Institute of Occupational Safety and Health (NIOSH), www.cdc.gov/niosh
- National Safety Council, www.nsc.org
- Occupational Safety and Health Administration (OSHA), www.osha.gov
- Project Management Tools, American Fire Sprinkler Association.
- Society for Human Resources Management (SHRM), www.shrm.org
- The Leadership Ladder, American Fire Sprinkler Association.
- United States Bureau of Mine Safety and Health Administration (MSHA), www.msha.gov
- United States Census Bureau, www.census.gov
- United States Department of Labor, www.dol.gov
- USA Today*, www.usatoday.com

Teaching Time For This Module

An outline for use in developing your lesson plan is presented below. Note that each Roman numeral in the outline equates to one session of instruction. Each session has a suggested time period of 2½ hours. This includes 10 minutes at the beginning of each session for administrative tasks and one 10-minute break during the session. Approximately 20 hours are suggested to cover *Introductory Skills for the Foreman*. You will need to adjust the time required for hands-on activity and testing based on your class size and resources. Because laboratories often correspond to Performance Tasks, the proficiency of the trainees may be noted during these exercises for Performance Testing purposes.

| Topic | Planned Time |
|--|--------------|
| Session I. Introduction; Foreman Responsibilities; Project Responsibilities | |
| A. Introduction | _____ |
| B. Foreman Responsibilities | _____ |
| C. Foreman's Project Responsibilities | _____ |
| Session II. Becoming a Foreman; Project Planning | |
| A. Becoming a Foreman | _____ |
| B. Characteristics of Leaders | _____ |
| C. Project Layout and Coordination | _____ |
| D. Stages of Planning | _____ |

Sessions III and IV. Project Documentation

- A. Project Documentation _____
- B. Sprinkler Shop Drawings and As-Builts _____
- C. Laboratory _____
Have trainees record changes on an as-built drawing. This laboratory corresponds to Performance Task 4.
- D. Stocklists and Stock Transfers _____
- E. Equipment and Tools Control _____
- F. Time and Material Sheets and Daily Reports _____
- G. Request for Information _____
- H. Laboratory _____
Have trainees prepare a request for information (RFI). This laboratory corresponds to Performance Task 1.
- I. Weekly Time and Progress Reports _____
- J. Laboratory _____
Have trainees complete daily, weekly time, and progress reports. This laboratory corresponds to Performance Task 3.
- K. Expense Reports and Foreman’s Report of Accident _____
- L. Laboratory _____
Have trainees prepare a foreman’s report of accident. This laboratory corresponds to Performance Task 2.

Sessions VI and VII. Materials Documentation; Leaving the Project; Continuing Education

- A. Materials Documentation _____
- B. Leaving the Project _____
- C. Continuing Education _____

Session VIII. Review and Testing

- A. Review _____
- B. Module Examination _____
 - 1. Trainees must score 70% or higher to receive recognition from NCCER.
 - 2. Record the testing results on Training Report Form 200, and submit the results to the Training Program Sponsor.
- C. Performance Testing _____
 - 1. Trainees must perform each task to the satisfaction of the instructor to receive recognition from NCCER. If applicable, proficiency noted during laboratory exercises can be used to satisfy the Performance Testing requirements.
 - 2. Record the testing results on Training Report Form 200, and submit the results to the Training Program Sponsor.

Module Overview

This module explains the importance of following proper procedures and accurate documentation for a project.

Prerequisites

Prior to training with this module, it is recommended that the trainee shall have successfully completed *Core Curriculum; Sprinkler Fitting Level One; Sprinkler Fitting Level Two; Sprinkler Fitting Level Three; and Sprinkler Fitting Level Four*, Modules 18401-08 through 18404-08.

Objectives

Upon completion of this module, the trainee will be able to do the following:

1. Recognize the consequences of improper system installation.
2. Identify the five Cs of project documentation.
3. Recognize unsafe acts and conditions on a work site.
4. Identify the hazards associated with specific tasks.
5. Discuss the procedures for responding to an accident.
6. Describe the procedures for emergency response to water damage.
7. Explain how to handle a water damage claim.

Performance Tasks

This is a knowledge-based module. There are no performance tasks.

Materials and Equipment

Multimedia projector and screen
Sprinkler Fitting Level Four PowerPoint®
Presentation Slides (ISBN 978-0-13-272927-7)
Computer
Whiteboard/chalkboard
Markers/chalk
Pencils and scratch paper
Appropriate personal protective equipment
Basic trainee tools
Samples of frozen pipes

Samples of couplings or fittings that have failed
Samples of frozen glue joints
Samples of sprinklers that have overheated or frozen, and that have sustained mechanical damage, corrosion, or sabotage
Sample information on a sprinkler system failure
Samples of documents from a typical project
Quick Quiz*
Module Examinations**

* Located at the back of this module.

**Single-module AIG purchases include the printed exam and performance task sheet. If you have purchased the perfect-bound version of this title, download these materials from the IRC using your access code.

Safety Considerations

Ensure that the trainees are equipped with appropriate personal protective equipment and know how to use it properly. Make sure all trainees are briefed on appropriate safety procedures. This module may require that the trainees visit job sites. Ensure that trainees are briefed on site safety policies prior to any site visits.

Additional Resources

This module presents thorough resources for task training. The following resource material is suggested for further study.

US Department of Labor Occupational Safety and Health Administration, www.osha.gov

The American Society of Safety Engineers, www.asse.org

Root Cause Analysis Handbook: A Guide to Effective Incident Investigation, 1999. JBF Associates Division. Rockville, MD: Government Institutes.

Teaching Time For This Module

An outline for use in developing your lesson plan is presented below. Note that each Roman numeral in the outline equates to one session of instruction. Each session has a suggested time period of 2½ hours. This includes 10 minutes at the beginning of each session for administrative tasks and one 10-minute break during the session. Approximately 20 hours are suggested to cover *Procedures and Documentation*. You will need to adjust the time required for hands-on activity and testing based on your class size and resources.

| Topic | Planned Time |
|--|--------------|
| Sessions I and II. Introduction; Case Histories | |
| A. Introduction | _____ |
| B. Case History: Improper Piping Installation | _____ |
| C. Case History: Improper Threading | _____ |
| Session III. Importance of Proper Documentation | |
| A. Importance of Proper Documentation | _____ |
| B. Project Documents | _____ |
| Session IV. Responding to Accidents | |
| A. Responding to Accidents | _____ |
| B. Accident Reports | _____ |
| Session V. Causes of System Failures | |
| A. Causes of System Failures | _____ |
| Session VI. Response to Water Damage | |
| A. Response to Water Damage | _____ |
| Session VII. Module Review | |
| A. Module Review | _____ |
| Session VIII. Testing | |
| A. Module Examination | _____ |
| 1. Trainees must score 70% or higher to receive recognition from NCCER. | |
| 2. Record the testing results on Training Report Form 200, and submit the results to the Training Program Sponsor. | |